

The on-screen version of the Collider-Accelerator Department Procedure is the Official Version. Hard copies of all signed, official, C-A Operating Procedures are kept on file in the C-A ESHQ Training Office, Bldg. 911A.

8.12.3 Introduction of Hazardous Gas into the Experimental Area

1. Purpose

- 1.1 To provide operating instructions, to the Collider-Accelerator Support (CAS) Watch, for controlling the start-up and initial filling of hazardous gas devices in the C-A Experimental Area of Building 912.
- 1.2 To provide guideline for the completion of Part B of the CAS Maintenance and Safety Check-List for Apparatus Employing Hazardous Gas.
- 1.3 To provide for the notification of Operations Coordinators (OC) and others whose routine may be impacted by the operation of the device.

2. Responsibilities

- 2.1 The CAS Beam Service Group Supervisor is responsible for completing Part A (maintenance prior to operation) of the CAS Maintenance and Safety-Check-List for Apparatus Employing Hazardous Gas.
- 2.2 The CAS Watch Supervisor is responsible for reviewing Part A and completing Part B (permission to fill) of the check-list.

3. Prerequisites

- 3.1 Qualified and trained CAS Watch Supervisor.

4. Precautions

- 4.1 A new check-off shall be issued each time that a hazardous gas device is initially filled or following the completion of Part C of an existing check-list.
 - 4.1.1 ex: A filled device is secure from operation for a week to allow for repairs. Part C of the existing check-off must be completed and a new check-list issued before refilling.

5. Procedure

- 5.1 The CAS Watch Supervisor completes Part B of the check-list by satisfying the requirements of the Part B Notes.
 - 5.1.1 Review part A (maintenance) of the check-list for completeness.

- 5.1.2 Verify with the CAS Technical Groups supervisor that the East Area Hold Point #1 is in "Affect" and inform him of the imminent filling of the hazardous gas device.
- 5.1.3 Unlock the special monitor systems for the Fire Wire and Evacuate circuits at the ECR and MCR.
- 5.1.4 Inform the Rigging Supervisor of the hazardous gas device location.
- 5.1.5 Check the status of the respective building crane and inform the rigging crew Lead-Man of the new restriction for crane operation.
- 5.1.6 Inform (directly) the C-A OC/or designee, of the imminent filling of the hazardous gas device.
- 5.2 The Beam Line Liaison Engineer signs for approval to fill.
- 5.3 The CAS Watch Supervisor signs for permission to fill.
 - 5.3.1 Inform the Hazardous Gas System Operator they have permission to fill the device.
 - 5.3.1.1 When applicable, the Hazardous Gas System Operator signs "Device Purged" documenting that the High Pressure Vent System has been purged.
 - 5.3.2 Record and pass-on an entry in the CAS Watch Log to the next shift to allow the new location of hazardous gas to be included into the "Log Heading".
 - 5.3.3 Update the Hazardous Gas Location Maps at the Main Control Room (MCR), Experimental Control Room (ECR), and East Area Hold Point #1.
 - 5.3.3.1 Update the Hazardous Gas Location Book at the MCR.
 - 5.3.3.2 Update the Hazardous Gas Location Board at the ECR.
 - 5.3.4 File the check-off into the Hazardous Gas Book.

6. Documentation

- 6.1 CAS Watch Log
- 6.2 CAS Watch Supervisor Report
- 6.3 Hazardous Gas System Operator Log
- 6.4 MCR Hazardous Gas Location Book
- 6.5 The completed (Parts A and B) CAS Maintenance and Safety Check-List for Apparatus Employing Hazardous Gas.

7. References

- 7.1 [C-A-OPM 8.11.1, "Filling LH2 Targets".](#)
- 7.2 [C-A-OPM 8.12.1, "Crane Clearance Procedure".](#)
- 7.3 [C-A-OPM 8.12.3, "Introduction Of Hazardous Gas Into Experimental Area"](#)
- 7.4 CAS Procedures and Instruction Manual D.2.0, "Notifying the Operations Coordinator of Hazardous Gas Devices".
- 7.5 CAS Procedures and Instruction Manual D.4.0, "Requirements for the Use of the CAS Maintenance and Safety Check-List for Apparatus Employing Hazardous Gas".
- 7.6 CAS Procedures and Instruction Manual D.11.0, "Communicating Requests for Crane Operation During C-A Operating Period".
- 7.7 CAS Procedures and Instruction Manual D.16.0, "Hazardous Gas Book".

8. Attachments

- 8.1 CAS Maintenance and Safety Check-List for Apparatus Employing Hazardous Gas (Form BNLF 1766A).
- 8.2 Reference Notes for Part B of Form BNLF 1766A.

**CAS MAINTENANCE AND SAFETY CHECK-OFF LIST FOR APPARATUS EMPLOYING
HAZARDOUS GAS**

PART-B

CAS OPERATIONAL CHECK-OFF FOR FILLING A HAZARDOUS GAS SYSTEM

HAZARDOUS GAS TYPE: _____		LOCATION / COLUMN: _____	
EXPERIMENTER: _____	NUMBER: _____	LIAISON: _____	
APPROVAL TO FILL DEVICE: DATE _____		TIME: _____	BY: _____
LIAISON			
PERMISSION TO FILL: DATE _____		TIME: _____	BY: _____
Watch Supervisor			
DEVICE PURGED: DATE _____		TIME: _____	BY: _____
Hazardous Gas Operator			

PART-C

CAS OPERATIONAL CHECK-OFF FOR DUMPING A HAZARDOUS GAS SYSTEM

DUMP STARTED: DATE _____		TIME: _____	BY: _____	
		Watch Supervisor		
REASON: _____				
CONDITIONS TO BE SATISFIED BEFORE DUMP IS COMPLETED COMPLETE CHECKED ITEMS				
	Note	Items	Date	By
Device Purged and Cleared of Hazardous Gas	1			
Vent System Purged and Cleared of Hazardous Gas	2			
Bleed Off Any Pressure Lines	3			
Hazardous Gas or Liquid Removed	4			
Coordinator Notified (Area Cleared of Gas)	5			
DUMP COMPLETED: DATE _____		TIME: _____	BY: _____	
Watch Supervisor				

PART-D

**CAS OPERATIONAL CHECK-OFF FOR DUMPING A HAZARDOUS GAS SYSTEM
COMPLETE CHECKED ITEMS**

	Note	Items	Date	By
Warning Signs Turned Off (No Smoking)	1			
Drip Leg Drain Valves Open	2			
All Monitoring Equipment is Locked Out	3			
ABOVE ITEMS COMPLETED: DATE _____		TIME: _____	BY: _____	
BSG Supervisor				

BNLF 1766A

Attachment 8.1

**CAS MAINTENANCE AND SAFETY CHECK-OFF LIST FOR APPARATUS EMPLOYING
HAZARDOUS GAS**

HAZARDOUS GAS TYPE: _____ LOCATION / COLUMN: _____

EXPERIMENTER: _____ NUMBER: _____ LIAISON: _____

PART-A

MAINTENANCE CONDITIONS TO BE SATISFIED PRIOR TO OPERATION

COMPLETE CHECKED ITEMS

	Note	Items	Date	By
Building Gas Detection System	1			
Local Gas Detection System	2			
Stack Fire Detection System	3			
Target Fire Monitor System	4			
Building Emergency Roof Fans	5			
Local Exhaust Fan	6			
Local Roof Fan Crash	7			
Local Evacuate System	8			
H. P. Vent System (Dump Lines)	9			
H. P. Vent System (Cylinder Rack)	10			
H. P. Vent System (Burster Disc.)	11			
H. P. Vent System (Drip Legs)	12			
H. P. Vent System (Chain Valve)	13			
Target Vacuum Alarm	14			
Target Trouble Alarm	15			
Experimenter's Power Interlock	16			
Warning Signs (No Smoking)	17			
Fire Extinguishers (2 minimum)	18			
Portable Gas Detector at EAG	19			
Exit Paths Cleared	20			
Safety Review Sticker Valid # _____	21			
All Extraneous Material Removed	22			
Hold Point Fully Operational	23			
Action Sheets Posted	24			
ABOVE ITEMS COMPLETED : DATE _____ TIME _____ BY _____ <div align="right">BSG Supervisor</div>				
SPECIAL INSTRUCTION / COMMENTS : _____ _____ _____ _____				

Attachment 8.2

NOTES:

**CAS MAINTENANCE AND SAFETY CHECK-OFF LIST FOR
APPARATUS EMPLOYING HAZARDOUS GAS**

PART "B"

NOTE: Before the Watch Supervisor can give permission to fill. It is his obligation to ensure that all precautions/instructions stated in references are fulfilled.

REFERENCES:

C-A-OPM 8.11.1,	"Filling LH2 Targets".
C-A-OPM 8.12.1,	"Crane Clearance Instructions".
C-A-OPM 8.12.3,	"Introduction of Hazardous Gas Into Experimental Area".
CAS-P&I D.2.0,	"Notifying the Operations Coordinator of Hazardous Gas Devices".
CAS-P&I D.11.0,	"Communicating Requests for Crane Operation During C-A Operating Periods".
CAS-P&I D.16.0,	"Hazardous Gas Book".